## *IN THE CLAIMS:*

This listing of claims will replace all prior versions and listings of claims in the application.

1.     (previously presented)  A system for performing temporal order independent numerical computations on data comprising:

a computation block;

a buffer block, wherein the buffer block includes at least one first buffer for storing only data values to which a first mathematical operation to be performed thereto after being transferred to the computation block is an addition operation by the computation block, and at least one second buffer for storing only data values to which a first mathematical operation to be performed thereto after being transferred to the computation block is a multiplication operation by the computation block; and

a demultiplexer located upstream from the buffer block, wherein:

the demultiplexer transmits only to the at least one first buffer the data values to which the first mathematical operation to be performed thereto after being transferred to the computation block is the addition operation by the computation block,

the demultiplexer transmits only to the at least one second buffer the data values to which the first mathematical operation to be performed thereto after being transferred to the computation block is the multiplication operation by the computation block, and

upon a condition, data values are transferred from the buffer block to the computation block for processing.

2.     (original)  The system according to claim 1, wherein the first and second buffers are FIFO ("First In First Out") buffers.

3.     (original)  The system according to claim 2, wherein the computation block computes an IDCT ("Inverse Discrete Cosine Transform").

4.    (original) The system according to claim 3, wherein eight first buffers are utilized, each corresponding to a column of an 8x8 block of data.

5.    (original) The system according to claim 3, wherein the IDCT is a 2-D IDCT.

6-7.   (canceled)

8.    (currently amended) The system according to claim ~~7~~ 1, wherein the computation block generates a new partial result utilizing data values transferred from the buffer block and the partial result transferred from ~~the~~ a temporary random access memory (TRAM), the new partial result being then stored back in the TRAM.

9.    (currently amended) A system for performing temporal order independent numerical computations on data comprising:

a computation block;

a buffer block, wherein the buffer block includes at least one first buffer for storing only data values to which a first mathematical operation to be performed thereto after being transferred to the computation block is an addition operation by the computation block, and at least one second buffer for storing only data values to which a first mathematical operation to be performed thereto after being transferred to the computation block is a multiplication operation by the computation block; and

a demultiplexer located upstream from the buffer block, wherein:

the demultiplexer transmits only to the at least one first buffer the data values to which the first mathematical operation to be performed thereto after being transferred to the computation block is the addition operation by the computation block,

the demultiplexer transmits only to the at least one second buffer the data values to which the first mathematical operation to be performed thereto

after being transferred to the computation block is the multiplication operation by the computation block, and

a temporary random access memory (TRAM) block, wherein the TRAM block stores partial results of the computation between clock cycles;

wherein, upon an occurrence of a predetermined condition, data values are transferred from the buffer block and the TRAM block to the computation block for processing.


10. (original) The system according to claim 9, wherein the computation block computes an IDCT ("Inverse Discrete Cosine Transform").


11. (original) The system according to claim 9, wherein eight first buffers are utilized, each corresponding to a column of an 8x8 block of data.


12. (canceled)


13. (original) The system according to claim 9, wherein the IDCT is a 2-D IDCT.


14. (previously presented) A method for performing temporal order independent computations comprising:

receiving a data value for processing;

determining whether the data value corresponds to one of an addition operation and a multiplication operation;

if the data value corresponds to a multiplication operation, storing the data value in a multiplication buffer that stores only data values to which a first mathematical operation performed thereto is multiplication;

if the data value corresponds to an addition operation, storing the data value in an addition buffer that stores only data values to which a first mathematical operation performed thereto is addition; and

outputting a data value stored in the multiplication buffer and an associated data value stored in the addition buffer to a computation block for processing, wherein the determining is performed upstream of the computation block.

15.    (currently amended) The method according to claim 14, further comprising storing partial results generated by the computation block in a temporary random access memory (TRAM).

16.    (previously presented) The system according to claim 1, wherein:

the demultiplexer determines whether the first mathematical operation to be performed on each of the data values after being transferred to the computation block is one of the addition operation and the multiplication operation.

17.    (currently amended) The system according to claim 9, wherein:

the demultiplexer determines whether the first mathematical operation to be performed on each of the data values after being transferred to the computation block is one of the addition operation and the multiplication operation.

18.    (previously presented) The method according to claim 14, wherein:

the determining step includes determining whether a first mathematical operation to be performed on the data value after being transferred to the computation block is one of the addition operation and the multiplication operation.

19.    (previously presented)  A system for performing temporal order independent computations comprising:

receiving a data value for processing;

determining whether the data value corresponds to one of an addition operation and a multiplication operation;

if the data value corresponds to a multiplication operation, storing the data value in a multiplication buffer that stores only data values to which a first mathematical operation performed thereto is multiplication;

if the data value corresponds to an addition operation, storing the data value in an addition buffer that stores only data values to which a first mathematical operation performed thereto is addition; and

outputting a data value stored in the multiplication buffer and an associated data value stored in the addition buffer to a computation block for processing, wherein the determining is performed upstream of the computation block.